Amendments to the Specification

Please amend paragraph [0013] as follows:

[0013] DS3 is a 44.736 Mbps data stream which can be transported up to 450 feet over coaxial cable. The interface is not sufficiently hardened to allow the cable to be buried or hung on poles. However, the interface will only operate reliably within a building or within a metal enclosure. Transporting a DS3 signal between buildings requires either microwave radios, translation to fiber optic medium, or line-of-sight free air optics equipment. Radios and free air optics equipment [[is]]are expensive, may be disrupted by adverse weather conditions and are suitable only when line-of-sight connections can be established between two ~~location~~locations. If fiber optic cable is not already installed, the expense of installation can be ~~prohibitive~~prohibitive, and the fiber optic termination equipment is itself very expensive. Installation of fiber is particularly inefficient where a single OC3 optical signal could carry three DS3 signals, but only a single DS3 is needed. In this case [[2/3]]two-thirds ($2/3^{rd}$) of the installed OC3 capacity is wasted as discussed in the background section above. Embodiments of the present invention allow the DS3 to be extended over four ordinary twisted pair conductors up to 2300 feet. Extra twisted pair are usually already installed and readily available, so installation cost is minimized. With repeater(s), the length of the span can be increased as needed. Since a DS3 is typically installed in a redundant configuration, embodiments of the present invention can advantageously accommodate this requirement by doubling the equipment at each end (and doubling intervening repeaters) and using eight twisted pair instead of four.

Please amend paragraph [0019] as follows:

[0019] The DS3 signal may include a Far End Alarm and Control (FEAC) channel embedded in the overhead. If so, embodiments of the invention can be provisioned to respond to the DS3 loopback and DS3 loop down or ~~the NIU~~Network Interface Unit (NIU) loopback and NIU loop down codes. While this is a normal part of most systems employing DS3 interfaces, embodiments of the present invention advantageously have the ability to handle loopbacks in tandem arrangements which would be typical in redundant installations.

Please amend paragraph [0020] as follows:

[0020] Figure 2 shows ~~a typical~~an exemplary application for embodiments of the present invention during a routine test of the system in a representative telephone company application. During the test, the equipment at the central office is replaced by a DS3 Test Set 108 capable of issuing the loopback code. Without an embodiment of the invention in place, the DS3 Network Interface Unit (NIU) 110 would respond to the NIU loopback code and the remote terminal equipment 112 would respond to the DS3 FEAC loopback. If the end unit 100 simply responded to either of the loopback codes, the NIU 110 and/or remote terminal equipment 112 would not be able to respond to that loopback.

Please amend paragraph [0021] as follows:

[0021] Thus, embodiments of the present invention preferably respond to either loopback code as provisioned by the user, but the user must configure the number of times that the loopback code must appear in order for the loopback to be executed by the system 100. In one embodiment, the Remote Unit 100a ~~furthest~~farthest from the test set will be provisioned to respond to the second loopback command. The first loopback command will normally be reserved for the NIU 110 or ~~teminating~~terminating equipment 112. The two loopback commands are preferably sent without an intervening loop down command. The Line Unit 100b, closest to the test equipment 108, preferably responds to a third consecutive loopback command without an intervening loop down command.

Please amend paragraph [0025] as follows:

[0025] One embodiment exemplified in FIG. 4 has DS3 interface 116 and DS3 interface 118 on front of the unit for use in applications such as remote telephone company enclosures. These connections automatically switch to the chassis to be controlled by relays 154 or other switching mechanisms for redundant implementations and communication with a neighboring unit.

Please amend paragraph [0026] as follows:

[0026] One embodiment utilizes 1:1 protection switching so that identical end units 100 may be utilized as standby units as contrasted with other methods whereby more than one unit 100 and separate control circuitry are used to provide protection switching. The preferred embodiment thereby offers smaller size, less complexity and requires fewer units to provide protection switching.

Please amend paragraph [0032] as follows:

[0032] This embodiment also includes four OSP LED's 130c-130f. For each of these ~~LED's~~LED's, red indicates no signal, and green indicates that a signal is present and that the link is synchronized.

Please amend paragraph [0042] as follows:

[0042] The functionality of an end unit 100 according to an embodiment of the invention will now be described in further detail. A DS3 input signal is demultiplexed into four modulated signals at 12.96 Mbps each. Conversely, there are four modulated inputs at 12.96 Mbps each that are remultiplexed into a single DS3 for transmission. The end unit 100 transmits and receives simultaneously on all twisted pairs. The upstream and downstream data is divided into separate frequency bands. This requires two different sets of filters to be implemented. A Network Unit device (~~further~~farthest "west" or towards the CO) will use the low frequency band for transmit and the high frequency band for receive. The Remote Unit device will use the high band for transmit and the ~~and the~~ low band for receive.

Please amend paragraph [0047] as follows:

[0047] The inverse multiplexer, at the receiver, buffers the packets, and aligns the data by matching the four bit packet numbers and arranging data according to the two bit stream number. The remaining two bits of the 2nd byte are used in the packet control stuffing. 62 bytes of the 64 byte packet are the actual data. The system has 11.39 Mbps of data capacity compared to the 11.184 Mbps of capacity which is required. If 61 of the 62 information bytes are used, the

resulting data rate is 11.21 Mbps which is very close to the nominal rate. Using 60 of the 62 data bytes, the data rate is only 11.03 Mbps. The inverse multiplexer function will vary the number of used data bytes in the 64 byte packet. In this embodiment, 61 bytes per packet would have valid data with an occasional packet that contained only 60 valid data bytes. There could be a case where the DS3 is running faster than nominal, and the modem link is running slower than ~~nominal~~nominal, resulting in the need for an occasional 62 byte information packet. The remaining two bits in the 2nd packet byte control this stuffing. Table 1 contains exemplary stuffing codes, and the corresponding number of valid information bytes carried in a packet.